

**Notice of Allowability**

Application No.

10/052,309

Applicant(s)

ITO ET AL.

Examiner

Art Unit

V. Paul Harper

2654

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 1/23/06.
2. ☒ The allowed claim(s) is/are 1-7,9-23 and 25-32.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |   |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)           |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment                              |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance  |
|   | 9. <input type="checkbox"/> Other _____   |

***Reasons for Allowance***

1. Claims 1-7, 9-23, and 25-32 are allowed.
2. Regarding **claims 1 and 17**, it is noted that the closest prior art of record, Tolonen ("Methods for Separation of Harmonic Sound Sources using Sinusoidal Modeling" AES 106<sup>th</sup> Convention, May 1999), teaches the separation of harmonic sound sources using sinusoidal modeling and includes an iterative step to select a sinusoid which minimizes the energy of the residual signal, but Tolonen does not teach: (claim 1) an error calculator for calculating an error in an amplitude/phase space between the spectrum of the input sound signal and the spectrum of the sum of the one or more unit signals; and means for iteratively altering the parameters of the unit signals and for having the error calculator recalculate the error until the parameters of the unit signals that provide minimum error are determined; (claim 17) calculating an error in amplitude/phase space between the spectrum of the input signal and the spectrum of the sum of the one or more unit signals; and iteratively altering the parameters of the unit signals for iterative calculation of the error until the unit signals that provide minimum error are determined.
3. Regarding **claims 5 and 21**, it is noted that the closest prior art of record, Tolonen, teaches the separation of harmonic sound sources using sinusoidal modeling and the grouping of sound events into streams, but Tolonen does not teach: (claim 5 ) a local layer for performing instantaneous encoding based on the spectrum to determine

local features parameters including frequencies, amplitudes and time variations thereof of the center frequencies of the frequency component candidate points; and a harmonic calculation layer for grouping the frequency component candidate points having a same harmonic structure that is determined by the local feature parameters including the frequency and its time variation rate of the frequency component candidate points, and then calculating a fundamental frequency of the harmonic structure, variations of the fundamental frequency, harmonics contained in the harmonic structure, and variation of the harmonics; or (claim 21) determining a local layer local feature parameters based on the spectrum at said frequency component candidate points, the local feature parameters including one or more center frequencies, time variation rate of the center frequencies to analyze local feature parameters; and a harmonic calculation layer for grouping the unit signals having a same harmonic structure that is determined by the local feature parameters including the time variation rate of the center frequencies, and then calculating a fundamental frequency of the harmonic structure, variations of the fundamental frequency, harmonics contained in the harmonic structure, and variation of the harmonics.

Thus, independent claims 1, 5, 17 and 21 are allowable over the prior art of record because the cited prior art alone or in combination, does not fairly suggest or disclose the claimed combination of features.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement for Reasons of Allowance."

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to V. Paul Harper whose telephone number is (571) 272-7605. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

2/08/2006

V. Paul Harper  
Patent Examiner  
Art Unit 2654

